Amendments to the Drawings:

The attached sheets of drawings include changes to Figs. 1-2. These (3) sheets, which includes Figs. 1, 1A, 1B, 2 and 2A, replaces the prior (2) sheets including Figs. 1 and 2.

Attachment: (3) Replacement Sheets

Remarks

Claims 1-5, 7-9 and 15 are pending in the application, of which claims 1-5, 7-9 and 15 are rejected. The drawings have been objected to by the Examiner. Applicant appreciates the courtesies extended by the Examiner during the telephonic interview on February 16, 2010. Applicant further appreciates the Examiner's indication that either the drawings filed on January 16, 2009 or January 14, 2010 are acceptable. Accordingly, by this paper Applicant resubmits the drawings as filed on January 16, 2009. Additionally, Applicant appreciates the Examiner's indication that claiming the outlet as a branch line is a possible way to distinguish the clean line heated valve from the prior art. Accordingly, by this paper Applicant amends independent claims 1 and 7 regarding the downstream connector, to claim subject matter disclosed in paragraphs [0035] and [0036] and Figures 1 and 2. Additionally, by this paper Applicant cancels claims 4 and 15, and amends the specification to address the drawing changes.

Drawing Objections

The drawings were objected to regarding the notch 11. (Final Office Action of February 2, 2010). However, during the telephonic interview, the Examiner agreed to accept the drawings filed January 16, 2009, because the Applicant had amended the claims to remove the "planar" and "notch" limitations. (Interview Summary mailed February 22, 2010). By this paper Applicant resubmits the drawings that were filed on January 16, 2009.

Claim Rejections - 35 U.S.C. § 102(b)

Claims 1-5, 7-9 and 15 are rejected under 35 U.S.C. § 102(b) as being anticipated by Miyamoto et al. (US 5,520,001).

Claim 1 as amended requires a "valve body with an integral upstream connector, a downstream connector extending from the body, and a smooth and contoured internal shape for providing a defined liquid flow path therebetween, wherein the downstream connector forms

a branch line for selectively draining a portion of the liquid passing through the body". The Examiner relies on Miyamoto et al.'s joints 13 and 14, each "attached to an integral" connector, for satisfying the upstream connector and downstream connector limitations. (Page 3 of the Final Office Action of February 2, 2010). Miyamoto et al. teach a liquid material input port 6 and a gas outlet port 11, where "[r]eference numerals 13, 14 designates a joint connected with said liquid material inlet port 6 and said gas outlet port 11, respectively." (Miyamoto et al., Col. 5, lines 42-44, Fig.1). Miyamoto et al. teach a valve block 20 with an adjustable diaphragm 23 between the input port 6 and output port 11 "for adjusting a flow rate of the liquid material LM and shutting off the liquid material LM". (Miyamoto et al., Col. 6, lines 31-36, emphasis added). Thus Miyamoto et al. teach a shut off valve for controlling the flow of all the fluid through a body and not "a branch line for selectively draining a portion of the liquid passing through the body" as claimed. Miyamoto et al. do not teach every element of claim 1, and claim 1 is not anticipated by Miyamoto et al.

Claims 2 and 3 depend from claim 1 and therefore are not anticipated for at least the reasons stated above with reference to claim 1.

Claim 4 is cancelled by this paper.

Claim 5 depends from claim 1 and therefore is not anticipated for at least the reasons stated above with reference to claim 1.

Claim 7 as amended requires "a downstream connector extending from the body and forming a branch line for selectively draining a portion of the liquid passing through the body". As stated above for claim 1, Miyamoto et al. teach a shut off valve for controlling the flow of all the fluid through a body and not "a branch line for selectively draining a portion of the liquid passing through the body" as claimed. Therefore claim 7 is not anticipated by Miyamoto et al.

Claim 7 as amended also requires "a smooth and contoured unitary valve body with an integral upstream connector extending from opposing sides of the body to define a

cylindrical passage through the body for supplying fluid". (Emphasis added). The Examiner relies on Miyamoto et al.'s joint 13, "attached to an integral upstream connector" for satisfying the upstream connector limitation. (Page 3 of the Final Office Action of February 2, 2010). Miyamoto et al. teach joint 13 (upstream connector) extending from one side surface 7, and joint 14 (downstream connector) extending from an opposing side surface 12. (Fig. 1). Miyamoto et al. does not teach an upstream connector (joint 13) that extends from "opposing side surfaces" as claimed. Miyamoto et al. do not teach every element of claim 7, and claim 7 is not anticipated by Miyamoto et al.

Claims 8 and 9 depend from claim 7 and therefore are not anticipated for at least the reasons stated above with reference to claim 7.

Claim 15 is cancelled by this paper.

Claim Rejections - 35 U.S.C. § 103

Claims 1-5, 7-9 and 15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Miyamoto et al. in view of Nagano (US 6,006,701).

The Examiner relies on Miyamoto et al. for satisfying all claims. Alternatively the Examiner relies on Nagano's heater H for satisfying the elongated heater limitation of claims 1, 7 and 15. (Pages 5 and 6 of the Final Office Action of February 2, 2010). As stated above regarding limitations other than the shape of the heater; claims 1-3, 5, and 7-9 are not anticipated by Miyamoto et al. and therefore the Examiner's obvious rejection fails to satisfy all claim limitations.

Claims 1 and 7 require a "valve body . . . for providing a defined liquid flow path . . . having a downstream void in liquid communication with the downstream connector". The Examiner states that "Miyamoto et al. discloses a valve which has a liquid component to the inlet

flow and which reasonably has a liquid component to the outlet flow". (Page 4 of the Final Office Action of February 2, 2010).

Both Miyamoto et al. and Nagano teach vaporizer valves having a gas output. With reference to Figure 1, Miyamoto et al. teach:

> Reference numerals 4, 5 designate a liquid material inlet passage and a gas outlet passage formed within the body block 1a . . . .[Where] (liquid material inlet port) 6 of said liquid material inlet passage 4 . . . introduce[s] a liquid material LM into a vaporizing chamber 21. . . . [and] gas outlet passage 5. . . lead[s] a gas G generated in said vaporizing chamber 21 out of the body block 1a.
>
> Miyamoto et al. Col. 5, lines 25-42, emphasis added.

With reference to Figure 1C, Nagano teaches:

> The vaporizer 10 comprises an upper member 20 having a liquid material inlet 22, an intermediate member 30 formed with both a gas outflow passage 32 and an assist gas feed passage 34, and a lower member 40 formed with an opening 42 (see FIG. 1(b). The upper member 20, intermediate member 30 and lower member 40 are laminated together and then fixed into an integral body with bolts B or the like.
>
> Nagano, Col. 3, lines 16-23, Fig. 1C, emphasis added.

Miyamoto et al. teach "[a] vapor conntroller capable of reducing a thermal influence upon a liquid material to be vaporized as far as possible". (Abstract). Thus, Miyamoto et al. teach vaporizing a liquid material to a gas. Miyamoto et al. and Nagano, alone or in combination, teach away from "liquid communication with the downstream connector" as claimed. Therefore claims 1 and 7 are nonobvious over the Examiner's combination.

Further, Miyamoto et al. and Nagano teach vaporizers with small internal fluid passages. Miyamoto et al. teach a range of (0.5 to 5mm) for the inside diameter of the liquid

material inlet 4, and a range of (2 to 4 mm) for the inside diameter of the gas outlet passage 5. (Miyamoto et al., Col. 5, lines 54-56, Fig. 1). Additionally the vaporizing chamber 21 is described as having a "remarkably small volume" (Miyamoto et al., Col. 7, line 37). Nagano teaches that diameter A (Fig. 1C) is about 8 mm, therefore smaller dimensions are inferred for the diameter of liquid inlet 22 and gas outflow passage 32 from Figs. 1B and 1C. (Nagano, Col. 5, lines 60-62). Valves having small diameter fluid passages, such as those taught by both Miyamoto et al. and Nagano, would be impractical for generating a liquid output, because flow rates would be low and therefore it would take a long period of time to produce a sufficient quantity of liquid output. Miyamoto et al. and Nagano teach away from "liquid communication with the downstream connector" as claimed. Therefore claims 1 and 7 are nonobvious over the Examiner's combination.

Claims 5 and 9 each require "a cavity forming a thermal break between the heater and the upstream connector for limiting heat conduction to the upstream void and the upstream connector". (Emphasis added). The Examiner relies on Miyamoto et al.'s openings 8 and 10 and the cavity holding sensor 3 for satisfying the cavity limitation, and liquid material inlet 4 for satisfying the upstream void limitation.(Page 3 of the Final Office Action of February 2, 2010). The Examiner states that the “cavities will inherently conduct heat less efficiently.”(Page 5 of the Final Office Action of February 2, 2010).

Miyamoto et al. teach a "cartridge heater 2 and thermocouple, heating the whole body block 1a". (Miyamoto et al., Col. 5, lines 23-26, emphasis added). Nagano teaches "[t]he whole of the vaporizer 10 is held at approximately the same temperature by heating with the heaters H. (Nagano, Col. 4, lines 27-29, emphasis added). Heating a liquid until it vaporizes and becomes a gas takes more energy than it would take to locally heat a downstream connector, as taught by the Applicant. Both Miyamoto et al and Nagano teach heating the whole body block/vaporizer to vaporize a liquid, and therefore both teach away from “limiting heat conduction to the upstream void and the upstream connector”as claimed. Therefore claims 5 and 9 are nonobvious over the Examiner's combination.

Conclusion

In view of the foregoing, Applicant respectfully asserts that the application is in condition for allowance, which allowance is hereby respectfully requested.

Please charge any fees or credit any overpayments as a result of the filing of this paper to our Deposit Account No. 02-3978.

Respectfully submitted,

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